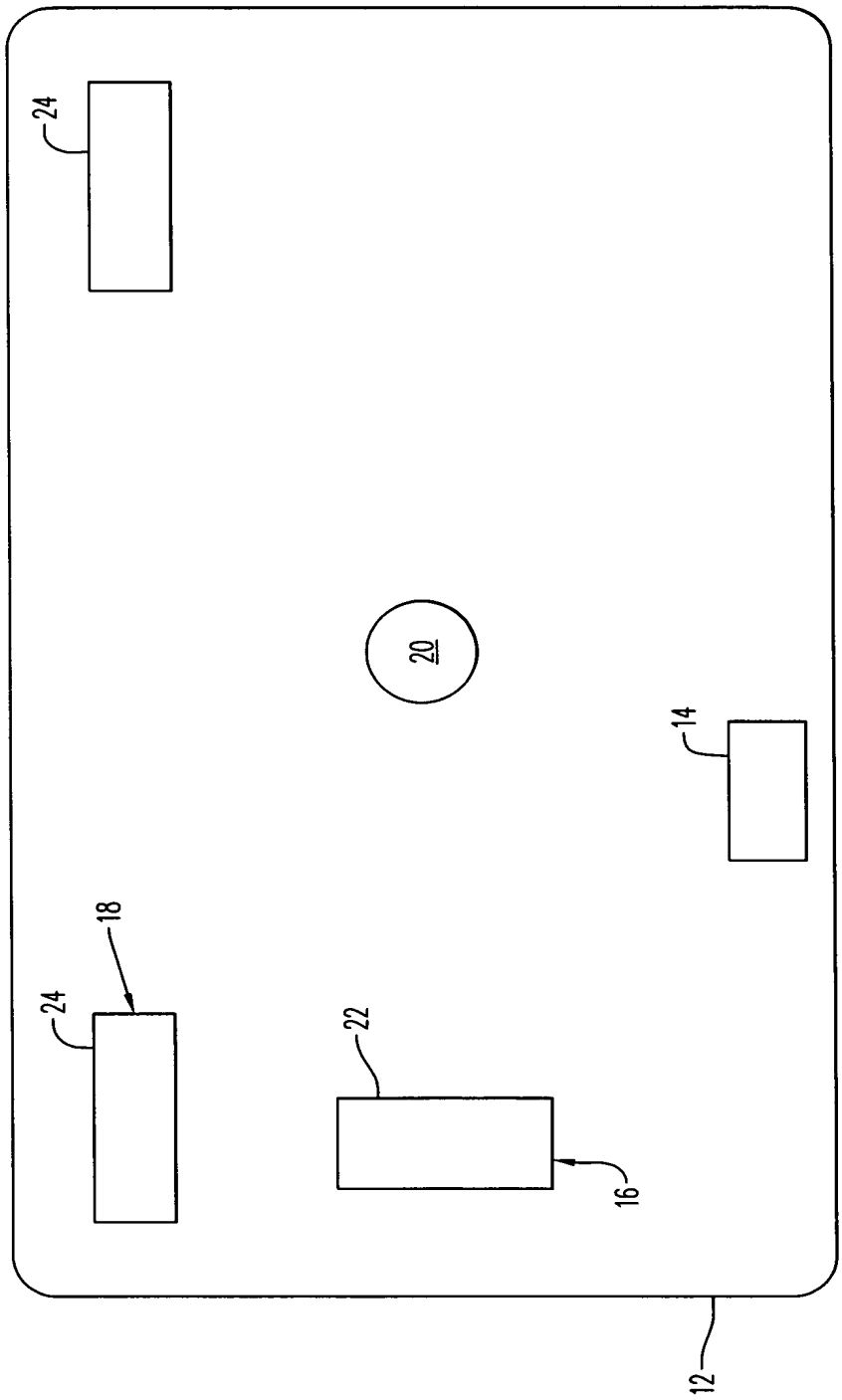

FIG. 1

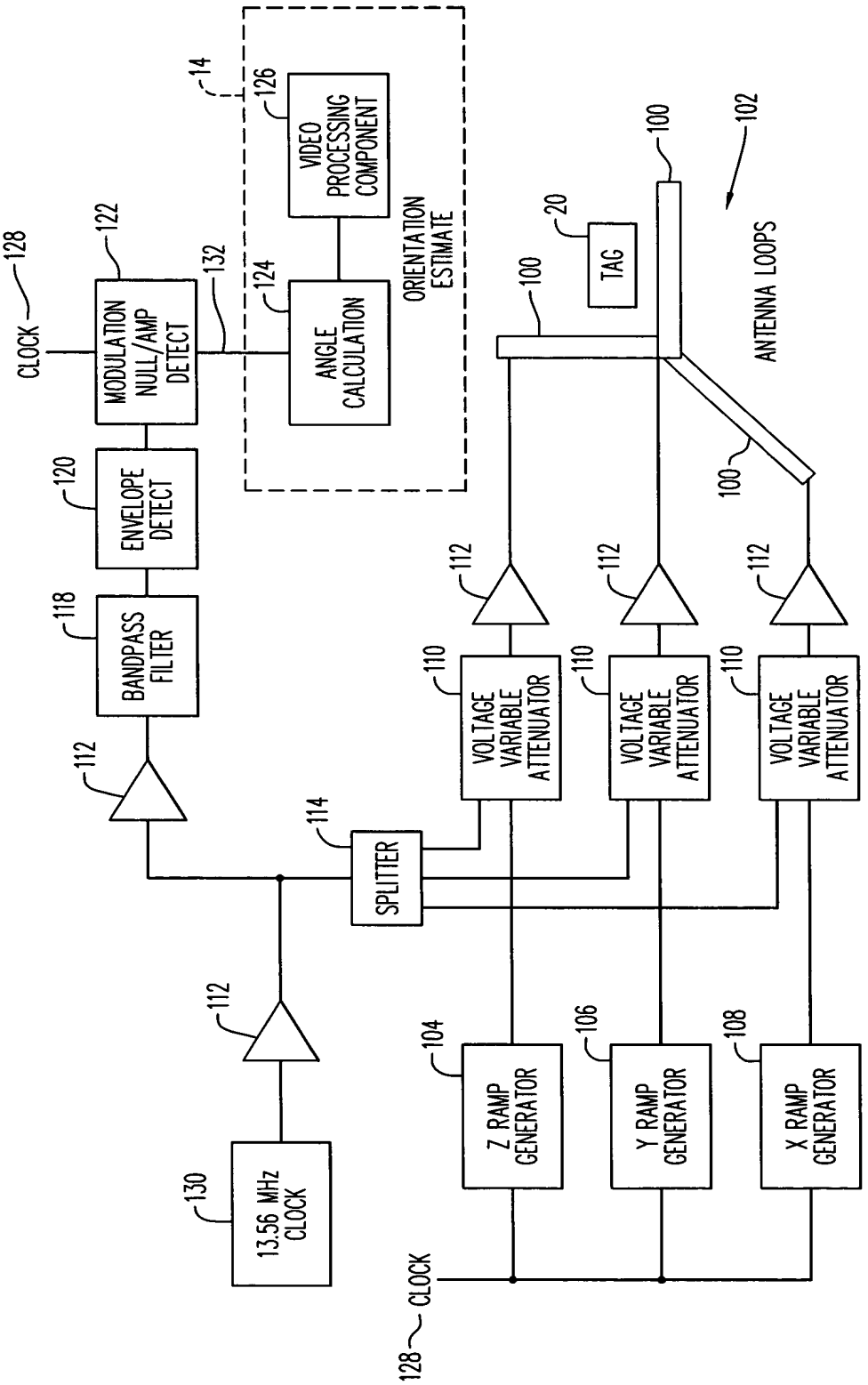
14
126
VIDEO PROCESSING COMPONENT
ORIENTATION ESTIMATE
128
CLOCK
122
MODULATION NULL/AMP DETECT
132
124
ANGLE CALCULATION
120
ENVELOPE DETECT
118
BANDPASS FILTER
112
130
13.56 MHz CLOCK
114
SPLITTER
110
VOLTAGE VARIABLE ATTENUATOR
104
Z RAMP GENERATOR
106
Y RAMP GENERATOR
108
X RAMP GENERATOR
128
CLOCK
20
TAG
100
ANTENNA LOOPS
102

FIG. 2

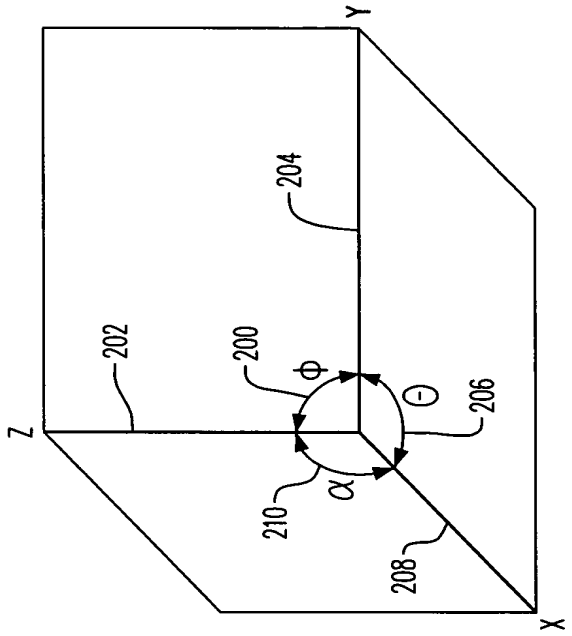

FIG. 3

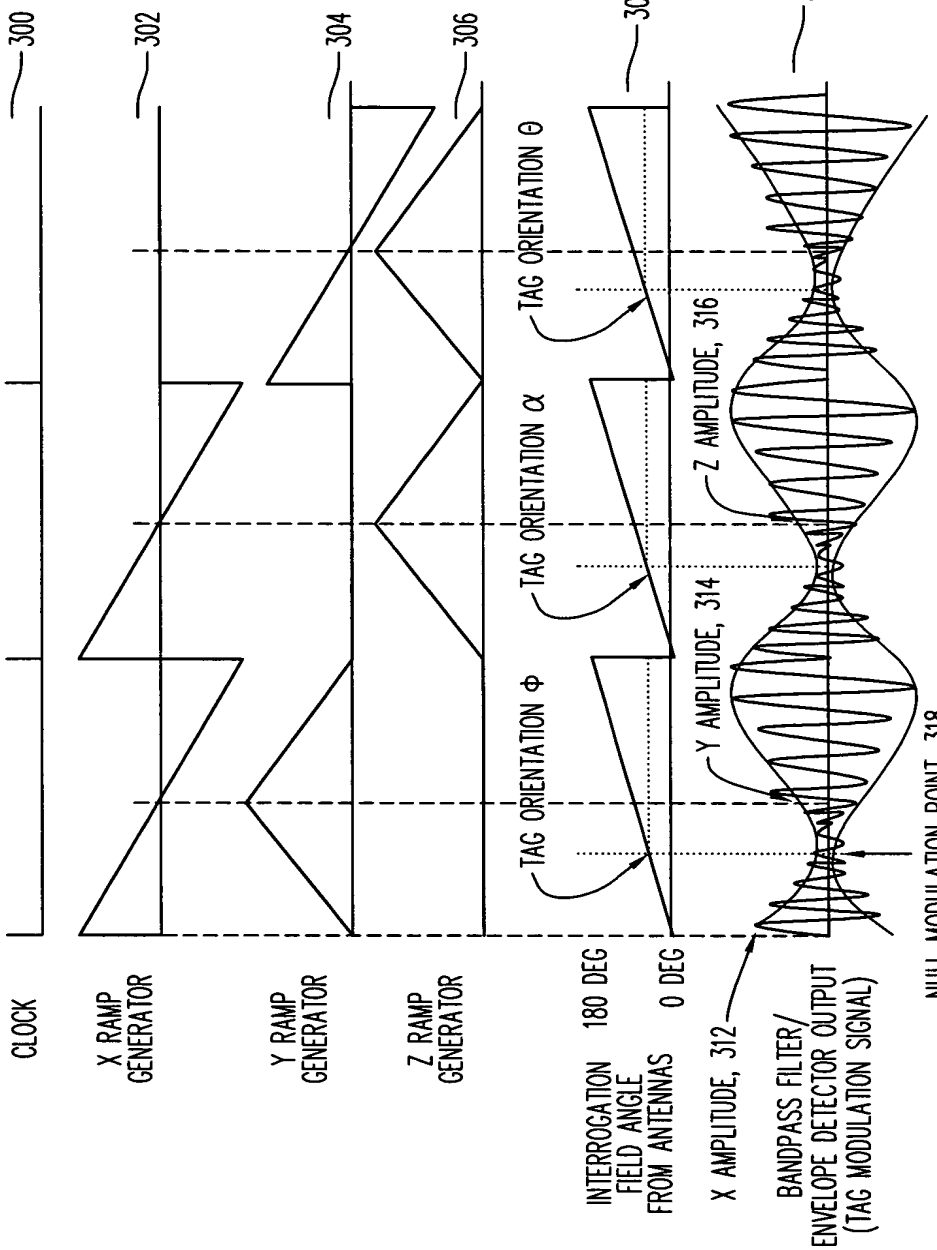
300
302
304
306
308
310
CLOCK
X RAMP GENERATOR
Y RAMP GENERATOR
Z RAMP GENERATOR
INTERROGATION FIELD ANGLE FROM ANTENNAS
180 DEG
0 DEG
TAG ORIENTATION Φ
TAG ORIENTATION α
TAG ORIENTATION Θ
X AMPLITUDE, 312
Y AMPLITUDE, 314
Z AMPLITUDE, 316
BANDPASS FILTER/ ENVELOPE DETECTOR OUTPUT (TAG MODULATION SIGNAL)
NULL MODULATION POINT, 318

FIG. 4

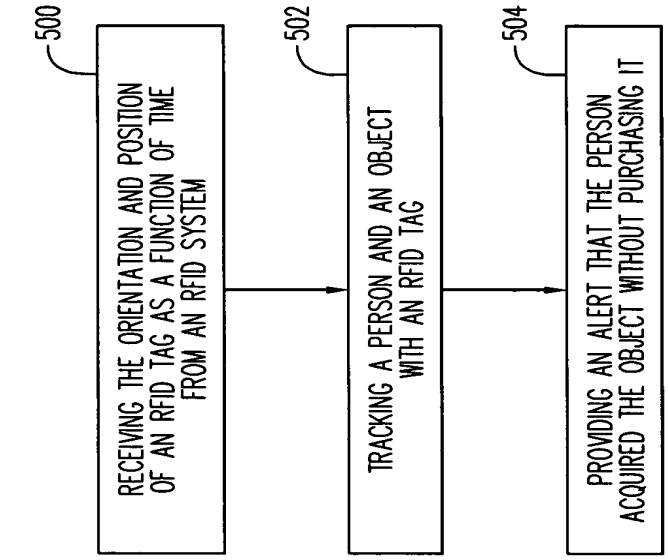
500
RECEIVING THE ORIENTATION AND POSITION OF AN RFID TAG AS A FUNCTION OF TIME FROM AN RFID SYSTEM
502
TRACKING A PERSON AND AN OBJECT WITH AN RFID TAG
504
PROVIDING AN ALERT THAT THE PERSON ACQUIRED THE OBJECT WITHOUT PURCHASING IT

FIG. 6

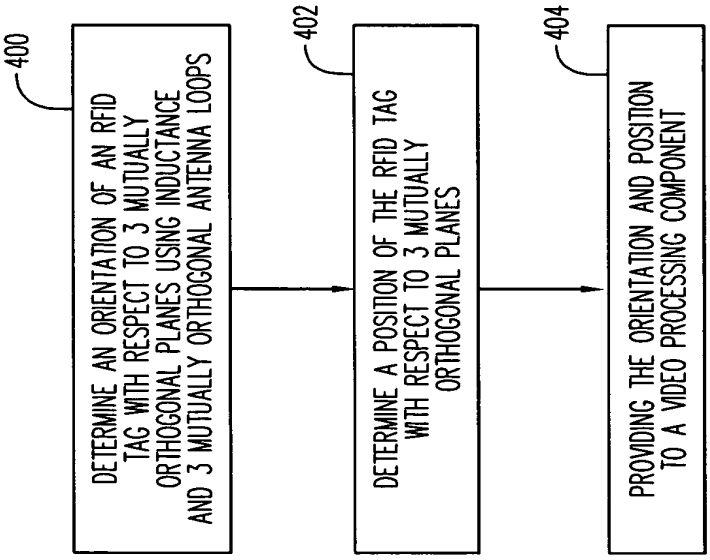
400
DETERMINE AN ORIENTATION OF AN RFID TAG WITH RESPECT TO 3 MUTUALLY ORTHOGONAL PLANES USING INDUCTANCE AND 3 MUTUALLY ORTHOGONAL ANTENNA LOOPS
402
DETERMINE A POSITION OF THE RFID TAG WITH RESPECT TO 3 MUTUALLY ORTHOGONAL PLANES
404
PROVIDING THE ORIENTATION AND POSITION TO A VIDEO PROCESSING COMPONENT

FIG. 5